

IN THE CLAIMS

Please amend the claims as follows:

Please cancel claims 1-63 of the original application and insert the following replacement claims therefor.

1. (new) A molding method for moldable bio-substance material, comprising:

(1) crushing the bio-substance materials into an incompact state and then extruding them for further molding through a molding die;

(2) forming at least a wedged extruding cavity between an extruding head and an extruding surface of the molding die;

(3) passing the bio-substance materials in the incompact state through an action of a relative movement between the extruding head and the extruding surface of the molding die at differential speeds; and

(4) grinding the particles of the bio-substance materials extruded between the extruding head and the extruding surface, and then twisting, stretching and flaking said bio-substance materials, and meanwhile extruding the same to a small end of the wedged extruding cavity and further forcing them into a molding cavity of the molding die to be molded.

2. (new) The molding method for moldable bio-substance material according to claim 1, wherein the water content of said moldable bio-substance materials is higher than 6% in its extruding state, and the best is 20%~50% for extrusion.

3. (new) The molding method for moldable bio-substance material according to claim 1, wherein said wedged extruding cavity can be formed between an end surface of the extruding head and the extruding surface of the molding die, and said bio-substance materials enter the extruding cavity from a large end of said wedged extruding cavity.

4. (new) The molding method for moldable bio-substance material according to claim 3, wherein the end surface of the extruding head forms at least a slope surface; the wedged extruding cavity is formed between said slope surface and the extruding surface of the molding die; the extruding cavity is arranged along the opposite direction of the movement of the extruding head from the large end to a small end thereof; and said bio-substance materials are grinded, twisted up, and extruded to the small end of the wedged extruding cavity and meanwhile extruded into the molding cavity when the extruding head moves relatively to the extruding surface of the molding die.

5. (new) The molding method for moldable bio-substance material according to claim 4, wherein said end surface of the extruding head and the extruding surface of the molding die have, in between, a coordinative clearance of less than 3mm.

6. (new) The molding method for moldable bio-substance material according to claim 5, wherein said end surface of the extruding head and the extruding surface of the molding die do not have a coordinative clearance in between.

7. (new) The molding method for moldable bio-substance material according to claim 3, wherein said relative movement of the extruding head and the extruding surface of the molding die is a relative slipping movement.

8. (new) The molding method for moldable bio-substance material according to claim 7, wherein during said relative movement between the extruding head and the extruding surface of the molding die, the extruding head can turn along its vertical axes while the molding die is static.

9. (new) The molding method for moldable bio-substance material according to claim 3, wherein said relative movement between the extruding head and the extruding surface of the molding die is a relative parallel movement in between.

10. (new) The molding method for moldable bio-substance material according to claim 9, wherein during said relative movement one of the extruding head and the molding die is still, while the other is moving relatively parallel to the static one.

11. (new) The molding method for moldable bio-substance material according to claim 9, wherein said parallel movement between the extruding head and the molding die is caused by their opposite movements.

12. (new) The molding method for moldable bio-substance material according to claim 9, wherein said parallel movement between the extruding head and the molding die is caused by their differential speed moving in the same direction.

13. (new) The molding method for moldable bio-substance material according to claim 3, wherein said molding cavity is arranged at an angle toward the end surface of the molding die.

14. (new) The molding method for moldable bio-substance material according to claim 13, wherein said molding cavity arranged at an angle to the end surface of the molding die has an oriented section.

15. (new) The molding method for moldable bio-substance material according to claim 9, wherein said molding cavity is a flute distributed along the extruding surface of the molding die.

16. (new) The molding method for moldable bio-substance material according to claim 1, wherein said extruding head is made from a rolling body, and the wedged extruding cavity is formed between the rolling surface of the extruding head and the extruding surface of the molding die.

17. (new) The molding method for moldable bio-substance material according to 16, wherein said extruding head made from the rolling body is a cylinder.

18. (new) The molding method for moldable bio-substance material according to 16, wherein said extruding head made from the rolling body is conic.

19. (new) The molding method for moldable bio-substance material according to claim 16, wherein said relative movement between the extruding head and the molding die is a composite movement formed between an axial self-rotation of the extruding head and a linear movement of the molding die.

20. (new) The molding method for moldable bio-substance material according to claim 16, wherein one of the extruding head and the molding die is static, while the other moves relatively to the static one.

21. (new) The molding method for moldable bio-substance material according to claim 19, wherein the direction of said axial self-rotation of the extruding head is opposite to the direction of the linear movement of the molding die.

22. (new) The molding method for moldable bio-substance material according to claim 21, wherein said relative movement is a differential speed movement in the same direction of the axial self-rotation of the extruding head and the linear movement of the molding die.

23. (new) The molding method for moldable bio-substance material according to claim 22, wherein the linear speed of said axial self-rotation of the extruding head is larger than the

linear moving speed of the molding die.

24. (new) The molding method for moldable bio-substance material according to claim 16, wherein said relative movement between the extruding head and the molding die is composed of an axial self-rotation of the extruding head and a revolution of the extruding head relatively using the molding die as an axe of the rotation.

25. (new) The molding method for moldable bio-substance material according to claim 24, wherein the relative movement of the extruding head and the molding die is composed of the axial self-rotation of the extruding head and the revolution of the extruding head relative to the molding die as an axe of rotation.

26. (new) The molding method for moldable bio-substance material according to claim 24, wherein said relative movement of the extruding head to the molding die is composed of the axial self-rotation of the extruding head and an axial self-rotation of the molding die.

27. (new) The molding method for moldable bio-substance material according to claim 25, wherein the movements of the extruding head and the molding die are in opposite direction between the axial self-rotation of the extruding head and the revolution of the extruding head using the molding die as a rotation axe.

28. (new) The molding method for moldable bio-substance material according to claim 25, wherein the relative movement is a differential speed movement in the same direction between the said axial self-rotation of the extruding head and the revolution of the extruding head using molding die as a rotation axe.

29. (new) The molding method for moldable bio-substance material according to claim 28, wherein the linear speed of the axial self-rotation of the extruding head is greater than the revolution speed of the extruding head using the molding die as the rotation axe.

30. (new) The molding method for moldable bio-substance material according to claim 19, wherein the extruding surface of the molding die is a plane; said wedged extruding cavity is formed between the rolling surface of the extruding head and the extruding surface of the molding die, and the materials enter into the extruding cavity along the large end of the wedged extruding cavity.

31. (new) The molding method for moldable bio-substance material according to claim 24, wherein said extruding surface of the molding die is an arc, and the curvature radius of

the extruding arc surface is greater than the rotation radius of the extruding head; and said wedged extruding cavity is formed between the rolling surfaces of the extruding head and the extruding surface of the molding die, and the bio-substance materials enter into the extruding cavity along the large end of the wedged extruding cavity.

32. (new) The molding method for moldable bio-substance material according to claim 30, wherein a large end of the wedged extruding cavity has an opening facing upwards, and the bio-substance materials are extruded into the extruding cavity and moved to a small end by gravity and friction produced between the extruding head and the extruding surface.

33. (new) The molding method for moldable bio-substance material according to claim 16, wherein said molding cavity of the molding die is arranged at an angle relatively to the extruding surface of the molding die.

34. (new) The molding method for moldable bio-substance material according to claim 33, wherein an oriented section is set for the molding cavity which is arranged at an angle to the extruding surface of the molding die.

35. (new) The molding method for moldable bio-substance material according to claim 16, wherein said molding cavity of the molding die is distributed over multiple flutes on the extruding surface of the molding die.

36. (new) The molding method for moldable bio-substance material according to claim 1, wherein the said molded product can be either air dried or stove dried.

37. (new) A molding apparatus for moldable bio-substance material, comprising
(1) at least an extruding head driven by power;
(2) a molding die having an extruding surface and a molding cavity;
(3) a wedged extruding cavity formed at least between the extruding head and the extruding surface of the molding die, and having a large end and a small end; and
(4) a material inlet provided at the large end of the wedged extruding cavity, through which particles of the bio-substance materials enter into the extruding cavity to be grinded, twisted up, stretched, flaked due to an action of relative movement between the extruding head and the extruding surface of the molding die, and meanwhile to be molded in the molding cavity of the molding die.

38. (new) The molding apparatus according to claim 37, wherein said wedged extruding cavity is formed between the end surface of the extruding head and the extruding

surface of the molding die, and the bio-substance material enter the extruding cavity from the large end.

39. (new) The molding apparatus according to claim 38, wherein at least one slope surface is formed on the end surface of extruding head; the wedged extruding cavity is formed by this slope surface and the extruding surface of the molding die; the extruding cavity is arranged along an opposite direction of the large end to small end movement of the extruding head; and the material will be grinded, twisted up, and at the same time extruded to the small end of extruding cavity and then into molding cavity, when the extruding head moves relatively to the extruding surface of the molding die.

40. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the slope surface of the said end surface of the extruding head can be two or more than two, the best to be a uniform distribution.

41. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the coordination clearance between the said end surface of the extruding head and the said extruding surface of the molding die is less than 3mm.

42. (new) The molding apparatus for moldable bio-substance material according to claim 41, wherein there is no coordination clearance between the said end surface of the extruding head and the said extruding surface of the molding die.

43. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the said relative movement between the end surface of the extruding head and the extruding surface of the molding die can be a relative slipping movement.

44. (new) The molding apparatus for moldable bio-substance material according to claim 43, wherein the said relative movement includes an axial rotation of the extruding head and the static state of the molding die.

45. (new) The molding apparatus for moldable bio-substance material according to claim 40, wherein the said slope surface of the end surface of the extruding head can be annularly distributed with the axe of its rotation.

46. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the said relative movement between the extruding head and the molding die can be relatively parallel.

47. (new) The molding apparatus for moldable bio-substance material according to claim 46, wherein for the said extruding head and said molding die, one of which is static and the other one is moving parallel relative to the static one.

48. (new) The molding apparatus for moldable bio-substance material according to claim 46, wherein the said relatively parallel movement between the extruding head and the molding die is the contrary movement in between.

49. (new) The molding apparatus for moldable bio-substance material according to claim 46, wherein the said relatively parallel movement between the extruding head and the molding die is the differential speed movement in the same direction.

50. (new) The molding apparatus for moldable bio-substance material according to claim 46, wherein the said slope surface of the end surface for the extruding head can be vertically distributed according to the direction of its movement.

51. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the said the end surface of the molding cavity is set at an angle to the molding die.

52. (new) The molding apparatus for moldable bio-substance material according to claim 51, wherein an oriented section could be set in the said the extruding cavity, which is arranged at an angle to the extruding surface of the molding die.

53. (new) The molding apparatus for moldable bio-substance material according to claim 51, wherein the large end height of the said molding cavity oriented section is no greater than 10mm.

54. (new) The molding apparatus for moldable bio-substance material according to claim 39, wherein the said molding cavity can be composed of multiple flutes distributing along the extruding surface of the molding die.

55. (new) The molding apparatus for moldable bio-substance material according to claim 37, wherein the said extruding head can be composed of the rolling body; the said wedged extruding cavity is formed between the rolling surface of the extruding head and the extruding surface of the molding die.

56. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said rolling body made of the extruding head, can be a cylinder.

57. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said rolling body made of the extruding head, can be a cone.

58. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said extruding surface of the molding die is set as a plane; the said wedged extruding cavity is formed between the rolling surface of the extruding head and the extruding surface of the molding die; the material enters the extruding cavity from the large end of the wedged extruding cavity.

59. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said extruding surface of molding die has the shape of an arc; the curvature radius of the extruding arc surface is greater than the rotation radius of the extruding head; the said wedged extruding cavity is formed between rolling surface of the extruding head and extruding surface of the molding die; the material enters the extruding cavity through the large end of wedged extruding cavity.

60. (new) The molding apparatus for moldable bio-substance material according to claim 58, wherein the said large end of wedged extruding cavity has upward facing opening; the material is extruded to enter the extruding cavity and then to the small end by its gravity and friction generated between the extruding head and the extruding surface.

61. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said relative movement between the extruding head and the molding die is a compositive movement, which includes the axial self-rotation of the extruding head and the linear movement of the molding die.

62. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein for the said extruding head and molding die, one is static, the other has relative movement relative to the static one.

63. (new) The molding apparatus for moldable bio-substance material according to claim 61, wherein the said direction of extruding head axial self-rotation is contrary to the linear movement direction of the molding die.

64. (new) The molding apparatus for moldable bio-substance material according to claim 61, wherein the said relative movement is the differential speed movement in the same direction between the axial self-rotation of the extruding head and linear movement of the molding die.

65. The molding apparatus for moldable bio-substance material according to claim 64, wherein the linear speed of the said extruding head axial self-rotation, is larger than the linear moving speed of the molding die.

66. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said relative movement between the extruding head and molding die, is a composition movement including the axial self-rotation of the extruding head and the revolution movement of the extruding head using molding die as rotation axle.

67. (new) The molding apparatus for moldable bio-substance material according to claim 66, wherein the said relative movement between the extruding head and the molding die, is a composition movement including the axial self-rotation of the extruding head and the revolution movement of the extruding head using extruding die as rotation axle.

68. (new) The molding apparatus for moldable bio-substance material according to claim 66, wherein the said relative movement between the extruding head and the molding die, is a composition movement including the axial self-rotation of the extruding head and the axial rotation of the molding die.

69. (new) The molding apparatus for moldable bio-substance material according to claim 67, wherein the said direction of the extruding head axial self-rotation is contrary to that of the revolution movement of extruding head using molding die as rotation axle.

70. (new) The molding apparatus for moldable bio-substance material according to claim 67, wherein it is the same direction differential speed movement that is between the said axial self-rotation of the extruding head and the revolution movement of the extruding head using molding die as rotation axle.

71. (new) The molding apparatus for moldable bio-substance material according to claim 70, wherein the said linear speed of the extruding head axial self-rotation is greater than the revolution speed of the extruding head relative to the molding die.

72. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said molding cavity of the molding die can be set at an angle relative to the extruding surface of the molding die.

73. (new) The molding apparatus for moldable bio-substance material according to claim 72, wherein an oriented section can be set on the said molding cavity, which is set at an angle to the extruding surface of the molding die.

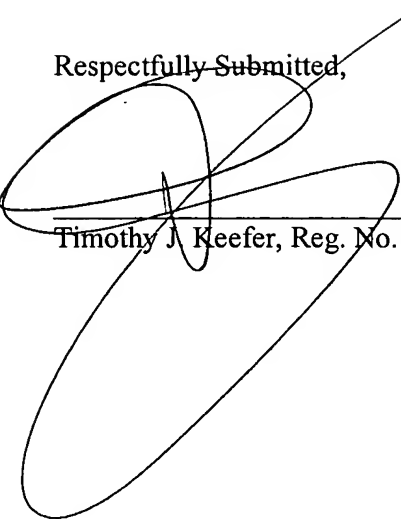
74. (new) The molding apparatus for moldable bio-substance material according to claim 73, wherein the height of the large end is no greater than 10mm in the said oriented section of the molding cavity.

75. (new) The molding apparatus for moldable bio-substance material according to claim 55, wherein the said molding cavity of the molding die can be distributed among multiple flutes on the extruding surface of the molding die.

Date: January 19, 2005

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Respectfully Submitted,



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